



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|--------------------------|------------------|
| 10/068,871 | 02/11/2002 | Lawson A. Wood | AW-19 | 2629 |
| 7590 | 08/09/2005 | | | |
| Lawson A. Wood 873 N. Frederick Street Arlington, VA 22205 | | | | |
| | | | EXAMINER WU, XIAO MIN | |
| | | | ART UNIT 2674 | PAPER NUMBER |

DATE MAILED: 08/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/068,871

Applicant(s)

WOOD, LAWSON A.

Examiner

XIAO M. WU

Art Unit

2674

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 May 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8, 11 and 18-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8, 11, 24, 31-33, 37 and 38 is/are allowed.
- 6) ☒ Claim(s) 1-7, 18, 21, 22, 25-29, 34 and 35 is/are rejected.
- 7) ☒ Claim(s) 19, 20, 23, 30 and 36 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-2, 4-6, 18, 21-22, 25-26, 28-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Gibbons et al. (US Patent No. 5,122,791).

As to claims 1, 4, 18, 21-22, 25, 28-29, Gibbons discloses a method for displaying a first color component (e.g. red) of an image described by video words for the first color component of a frame, the video words having bits with different bit ranks (col. 4, lines 18), the method comprising the steps of: (a) for each bit rank of the first color component of the frame, turning pixels of a spatial light modulator on or off in accordance with values of the video words for the respective bit rank (Fig. 2); (b) steadily exposing the spatial light modulator to light of the first color component during substantially the entire time that step (a) is conducted (e.g. 8Ig, 4Ig, 2Ig, Ig, Fig. 2), the light being generated by a light source(6-8, Fig. 1); and (c) driving the light source at a first energy level for one of the bit ranks and at a substantially greater second energy level for another of the bit ranks (e.g. 8Ig is greater than 4Ig as shown in Fig. 2) Gibbons further discloses substantially steadily exposing the spatial light modulator to light that varies substantially in intensity as required in claim 4 (see Fig. 2). Gibbons also discloses a first one of the bit ranks (e.g. most significant bit for representing the highest light intensity level 8Ig) and a second one

Art Unit: 2674

of the bit ranks (e.g. the second most significant bit for representing the second highest light intensity level 4Ig).

As to claims 2, 6, 26, Gibbons discloses that the spatial modulator is any LCD panel (col. 1, line 16).

As to claim 5, Gibbons discloses that the light has intensity at one moment that is at least about twice intensity at another moment (e.g. 8Ig is twice intensity of 4Ig, see Fig. 2).

3. Claims 34-35 are rejected under 35 U.S.C. 102(b) as being anticipated by Baldwin et al. (US Patent No. 5,986,640).

As to claim 34, Baldwin discloses a method for displaying a sequence of image described by video words, the video words having bits with different bit ranks, the method comprising the steps of: (a) exposing a spatial light modulator to light generated by a light source (Fig. 1); (b) displaying the bit ranks of the video words describing a given frame of the sequence on the spatial light modulator in a predetermined order (e.g. 16 in the first frame as shown in Fig. 4d); and (c) displaying the bit ranks of the video words describing the next frame of the sequence on the spatial light modulator in a different order (e.g. 8, 4, 2 in the second frame as shown in Fig. 4d)..

As to claim 35, Baldwin discloses varying the intensity of the light t which the spatial light modulator is exposed substantially (e.g. Fig.4 shows the intensity level is varying).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2674

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 3, 7, 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gibbons et al. (US Patent No. 5,122,791) in view of Heimbuch et al. (US Patent No. 5,448,314).

As to claims 3, 7, 27, it is noted that Gibbons does not specifically disclose the spatial light modulator is a digital micromirror device. However, it is well known in the art that the DMD is one kind of the spatial light modulator and it is similar to liquid crystal display since they are both need light source. For example, Heimbuch is cited to teach a color DMD display device with a backlight light source (see Fig. 4). It would have been obvious to one of ordinary skill in the art to have substituted the DMD as taught by Heimbuch for the LCD of the Gibbons because they are alternative for each other. Furthermore, Gibbons as modified discloses discontinuously exposing the digital micromirror device to brief-duration flashes of light, the flashes having intensities that depend on the respective bit rank (e.g. in the most significant bit, the flash has intensity of $8I_g$ and in a next most significant bit, the flash has intensity of $4I_g$, see Fig. 2).

Allowable Subject Matter

6. Claims 19, 20, 23, 30, 36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. Claims 8, 11, 24, 31-33 and 37-38 are allowed.

Response to Arguments

8. Applicant's arguments filed 5/4/2005 have been fully considered but they are not persuasive.

With respect to claims 1, 4 and 25, applicant argues that Gibbons's Fig. 2 shows four discrete flashes of light during the "GREEN IMAGE" period, not a steady exposure. This argument is not persuasive because claims do not require that the light source is steadily exposing. The claims only require "steadily exposing the spatial light modulator to light of the first color component during substantially the entire time that step (a) is conduct..." In other words, the spatial light modulator is steadily exposing to the light source. This feature is clearly taught by Gibbons because the spatial light modulator of Gibbons is always exposing to the light generated by the light source located behind the spatial light modulator.

With respect to claims 34 and 35, applicant argues that Baldwin does not disclose "displaying the bit ranks of the video words describing the next frame... in a different order. This argument is not persuasive. As shown in Fig. 4d, Baldwin clearly shows that a bit ranks of video words is 10000 in a first frame and other bit ranks of video words is 01110 in the next frame. These two bit ranks of video words are clearly in different order.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

Art Unit: 2674

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to XIAO M. WU whose telephone number is 571-272-7761.

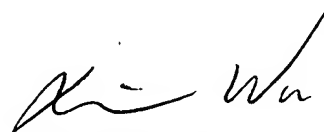
The examiner can normally be reached on 6:30 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, PATRICK EDOUARD, can be reached on 571-272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

x.w.

August 5, 2005



XIAO M. WU
Primary Examiner
Art Unit 2674